



## Safety & Mission Assurance

Presenter **M. D. Erminger**

Date **August 1, 2001**

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# STS-105/7A.1

## Flight Readiness Review



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# Approach and General Description

**S&MA held reviews in preparation for the STS-105/7A.1 Flight Readiness Review on 3 July and 30 July 2001 and is ready to proceed toward launch countdown.**

## FRR Briefing Overview

- **Significant assessments - *discuss***
- **Special topics**
  - **NASA Safety Reporting System (NSRS) - *discuss***
  - **Space Shuttle Hazard Analysis - *discuss***
  - **Space Shuttle FMEA/CIL – *discuss***
- **Space Shuttle and Space Station Independent Assessments - *discuss***
  - Significant Open Work - *none*
  - CoFR Exceptions - *none*
  - Open Action Items - *none*



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# Significant Assessments

## Space Station

- Early Ammonia Servicer Issues

## Orbiter

- AMEC S/N 10 Failure

## EVA

- STS-104 EVA Battery Leakage of KOH

## KSC L&L

- STS-104 Zaragoza Single String TACAN

***ADDITIONAL ASSESSED ITEMS ARE IN THE BACKUP CHARTS***



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# NSRS Summary

**There are no NASA Safety Reporting System reports open that are applicable to STS-105/7A.1.**



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# Hazard Analysis Summary

**There are no new Accepted Risk hazards identified for STS-105/7A.1.**



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# FMEA/CIL Summary

**There are no new Criticality 1 failure modes identified for STS-105/7A.1.**



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# Space Shuttle and Space Station Independent Assessments

- JS-0038**      **Evaluation of RM2667-001 EEPROM Deficiencies Affecting Electrical Power System (EPS) Orbital Replacement Units (ORUs)**
- JS-1020**      **Adequacy of the ISS Caution and Warning (C&W) Configuration to Support Crew Sleep**
- JS-0041**      **Adequacy of the Trash Stowage Plan to Support an Occupied ISS**
- JS-0056**      **International Space Station Increment Pre-Mission and Mission Timeline Development Process**

*Additional Assessed Items Are In The Backup Charts*



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# STS-105/7A.1 Readiness Statement

With the satisfactory completion of identified open work, Safety and Mission Assurance has no constraints to STS-105/7A.1. S&MA has no issues that constrain any of the mission success criteria.

/s/ John Casper  
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S&MA Director, MSFC

/s/ Jerry Holsomback  
ISS S&MA Manager

/s/ Mark Erminger  
SS SR&QA Manager

/s/ Shannon Bartell  
Director, KSC Safety, Health  
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/s/ Bill Higgins  
Chief, Shuttle S&MA, KSC

/s/ Hank Davis  
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/s/ Mike Smiles  
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**STS-105/7A.1**

**Flight Readiness Review**

**Backup Package**



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# **Additional Assessments**

### **Orbiter/GFE**

- **Wing Leading Edge Spanner Beam Inspection**
- **Loose Fasteners on MPS Feedline**
- **STS-100 OMS Pod Motion**
- **STS-104 ODS Centerline Camera Misalignment**
- **STS-104 Forward Bulkhead Floodlight Coldplate Return Line Low Temperature**
- **Lightweight Seats-Manual Gear Shaft Adjustment**
- **Window #8 Environmental Seal**
- **External Tank (ET) Separation Camera Leak**

### **EVA**

- **EMU Boot Fit**
- **Top Mount Hand Rail Corrosion**



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# Additional Assessments

### RSRM

- RSRM-81 (STS-105) Left Booster Field Joint Repair

### SRB

- First Flight/Critical Process Change
  - First Flight of Single Mission Isolation Valve (SMFIV)
- Auxiliary Power Unit (APU) Spring Material Design Change
- SRB Reefing Line Cutter Design Changes

### SSME

- Block I HPFTP Missing Tip Seal Particles

### Space Station

- Status of Service Module Software Update
- Transition Plan for the Solid State Mass Memory Units
- MPLM Crew Ingress and Sleep
- Crew Sleep Shifting



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# Space Shuttle and Space Station Independent Assessments

Assessment Number	Title
JS-1023	Software Problem Report (PR) Communication Processes
JS-1027	Special Assessment: Review of the ISS Acoustic Requirements
<u>JS-1029</u>	Evaluation of ISS Waiver and Exception Trends
<u>JS-0015</u>	Adequacy of STS Crew Training Resources to Support the Planned Increase in Shuttle Flight Rate. Training Resources to Support the Planned Increase in Shuttle Flight Rate
<u>JS-0017</u>	Adequacy of the Verification Tracking Log (VTL) Process
JS-0052	Human Factors Evaluation of the Early ISS Crew Quarters Habitability.
JS-0025	Evaluation of the Boeing-Huntington Beach Non-Standard Part Approval Request (NSPAR) Process for Electrical, Electronic and Electromechanical (EEE) Parts
<u>JS-1010</u>	Adequacy of the IVA Radiation Shielding Plans for the ISS.
<u>JS-1017</u>	Evaluation of Operational Procedures, Interfaces and Tools Related to the Threat of Orbital Debris to the ISS
<u>JA-1121</u>	Evaluation of Workmanship of the International Space Station (ISS) Lab Module Fiber Optics (FO) Cables
JA-1122	Assessment of the ISS EPS's Backup DC-DC Converter Unit
JA-1124	Assessment of the ISS Plasma Arcing/PCU Issues
<u>JA-1126</u>	Revisit of the Analysis of the Commanding Processes for ISS
<u>JA-1132</u>	Evaluation of the International Space Station (ISS) Auroral Wake Charging Effects
<u>JA-9010</u>	Review of Aero-37 Contamination Assessment Results
JA-9100	Analysis of the Commanding and Reconfiguration Processes for ISS
JA-9114	Evaluation of International Space Station (ISS) Fiber Optics (FO) Cables Failure Root Cause



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Assessment Number	Title
<u>KS-1001</u>	Long-Term Space Shuttle Logistics Supportability
<u>GS-0007</u>	Independent Assessment of Plasma Contactor Unit (PCU) Risk Areas
<u>MH-1006</u>	Thiokol Wasach Facility Quality Program
<u>MH-0008</u>	Comparison of SSME Contractor Welding Processes and Industry Standards
MH-9024	Review of MSFC Shuttle Contractor Problem Report and Corrective Action (PRACA) Operation
MH-1003	ISS Response to Pressurized Element Depressurization Event
JA-1125	International Space Station (ISS) Fiber Optics (FO) Lessons Learned.
JS-0046	International Space Station Program (ISSP) Non-Conformance Report (NCR) Process
GS-0006	Boeing-Canoga Park (CP) Non-Standard Part Approval Request (NSPAR) Process Assessment
<u>JA-9111</u>	Review of ISS Digital Pre-assembly (DPA)
<u>JA-9102</u>	Survey of Space Qualified Cameras for Direct View Berthing Applications
<u>JS-0018</u>	Adequacy of Thermal Math Model (TMM) for ISS Active Thermal Control System (ATCS)
<u>JS-9086</u>	Evaluation of the Limited Life Item (LLI) Operational Usage Tracking Processes following Launch-to-Activation (LTA)
JS-0016	Adequacy of International Space Station (ISS) Contingency Planning for Leonid Meteor Events
JA-9112	Evaluation of International Space Station (ISS) Fiber Optics (FO) Cables
JS-9089	Determination of ISS Assembly Activity Failures That Would Require Shuttle Contingency Flights
JS-0013	Evaluation of ISS Crew Health and Performance Impacts Resulting from Long Term Exposure to the ISS Acoustic Environment



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# Space Shuttle and Space Station Independent Assessments

Assessment Number	Title
<u>MH-0005</u>	Electrical, Electronic, & Electromechanical (EEE) Parts and Nonstandard Part Approval Request (NSPAR) Process
<u>MH-9010</u>	Radiation Hardening Verification for Critical ISS GFE EEE Components
<u>KS-9005</u>	Limited Life Item (LLI) Identification, Tracking, and Control
<u>JS-9052</u>	Readiness Review of ISS Berthing Operations for Flights 3A to 9A
<u>JS-9054</u>	H-fixture Stress and Fracture Analysis Review
JS-9063	Review of Thermal Math Models for Airlock and US Lab and Support of Peer Review
JS-9038	Adequacy of the End-to-End Verification Test of the Inventory Management System (IMS)
GS-9006	Remote Power Controller Module (RPCM) Types I & II FCA/PCA
JS-9032	Phase 1 Program (Shuttle/Mir) to Phase 2 Program (Shuttle/ISS) Hazard Assessment Traceability
<u>JS-9007</u>	Review of Generic Flight Rules Volume B
<u>JS-9008</u>	Review of Generic Flight Rules Volume C
<u>JSC-98-100</u>	Implementation of the Problem Reporting and Corrective Action (PRACA) System for the ISS Program
<u>JS-9006</u>	Evaluation of Flight Rule CRs for Volumes B&C Except for C&T and EVA
<u>JSC-98-101</u>	Special Assessment: An Evaluation of Space Vision System (SVS Testing)
HS-9010	Incremental Functional Configuration Audit (IFCA) Number One (#1) Assessment for the Capture Latch Assembly (CLA)
HS-9011	Functional Configuration Audit/Physical Configuration Audit (FCA/PCA) Assessment for the Capture Latch Assembly (CLA)
MSFC-IA-0061	ISS Electrical, Electronic, and Electromechanical (EEE) Parts Spot Audits



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# Space Shuttle and Space Station Independent Assessments

Assessment Number	Title
<u>MSFC-IA-0059</u>	Common Berthing Mechanism (CBM) Assembly Level Qualification Test (ALQT) Update Assessment
JSC-98-012	Identification of Thermal Model Validation Testing Needed for ORUs Flown from Flight 2A through 8A
<u>MSFC-IA-0041</u>	Common Berthing Mechanism (CBM) Assembly Level Qualification Test and Integrated Berthing Test
<u>JSC-LM97-151</u>	Special Assessment: Assessment of the HARP Team;s Evaluation of the Program Acceptance Process
HB0092/96	Fiber Optics Termini Production at PG-1 (Phase 2)
<u>JSC-LM97-052</u>	Adequacy of Space Vision System Testing and Verification with Respect to Station Operations
<u>HB009/96</u>	Fiber Optics Termini Production at PG-1 (Phase 1)
<u>JSC-LSIS-106</u>	Risk Assessment of Ku-Band Antenna Survival and Operations Through Flight 8A
LSIS-167	Assess the Adequacy of External Viewing Resources to Support Station Activities for Stages 1 Through 16 (Flights 1A/R Through 11A)
LSIS-104	Design Analysis Cycle (DAC) #4 Special Assessment Review Item Discrepancies
LSIS-173	Maintenance for Stages 1 Through 16 (Flights 1A/R Through 11A)
LSIS-172	Assess the Adequacy of External Viewing Resources to Support Station Assembly Stages 1 Through 16 (Flights 1 A/R Through 11A)
LSIS-124	The Relative Benefit of Individual Spare Part Availability to ISS Functional Availability
LSIS-047	Assessment of the Failure Rates of Items Requiring Scheduled Remove and Replace (Preventive Maintenance)
MSFC-IA-015	Independent Assessment Report On The International Space Station's Ability To Provide Adequate Caution & Warning Annunciation



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